

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

NEW BATS OF THE GENUS *LAEPHOTIS* FROM AFRICA
(MAMMALIA: CHIROPTERA)

BY H. W. SETZER

Smithsonian Institution, Washington, D.C. 20560

The Smithsonian Institution African Mammal Project has had field parties collecting small mammals and their ectoparasites in southern Africa since 1963.

These field teams obtained two specimens of the genus *Laephotis* from South West Africa and one specimen from northwestern Botswana. None of these individuals agree with other known taxa in the genus *Laephotis*. We have made repeated efforts to obtain additional specimens, especially from South West Africa, but have been unsuccessful.

All measurements are in millimeters and capitalized color terms are from Ridgway "Color Standards and Color Nomenclature, 1912."

Owing to the degree of distinctness of these specimens two new taxa are here proposed and may be known as:

***Laephotis namibensis* new species**

Holotype: Adult female, skin and skull, U.S. National Museum no. 342152, from Namib Research Station, Gobabeb, South West Africa; obtained 22 November 1963 by Ronald E. Cole, original no. 270.

Specimens examined: Two from the type locality.

Measurements: The measurements of the holotype with those of a female paratype (USNM 342153) in parentheses are: Total length 106 (104); length of tail 47 (46); length of hind foot 8 (8); length of ear 25 (24); length of forearm (dry) 38.2 (38.6); greatest length of skull 16.5 (16.5); greatest breadth across zygomatic arches 9.0 (-); least postorbital breadth 3.2 (3.6); greatest breadth of braincase 7.5 (7.6); depth of braincase 4.7 (4.9); length of maxillary toothrow 4.9 (5.0); postpalatal length 5.9 (6.0); breadth of palate across M²-M² 5.2 (5.4); breadth of palate across C-C 4.0 (4.0).

Diagnosis: Upper parts Light-Drab; flight membranes near Olive Brown; underparts noticeably paler than dorsum, individual hairs black at base, a narrow band (1–2 mm) of pure color (near Light-Drab), and tipped (2–3 mm) with white. Ears exceptionally large; tragus and anti-tragus well developed. Skull large for the genus; relatively long and narrow; upper toothrows nearly parallel; palate relatively long and narrow; auditory bullae remarkably inflated ventrally.

Comparisons: Compared with the holotype of *Laephotis wintoni*, *L. namibensis* is markedly paler in color; markedly larger ears, especially across the base (10.9 dry); and markedly larger tragus. The skull is longer; the postorbital constriction is less; the braincase is somewhat more domed; the auditory bullae are more inflated; the zygomatic arches are more markedly bowed dorsad; and the maxillary toothrows are more nearly parallel.

From a specimen of *Laephotis angolensis* from 35 km. E Dande, Angola, in the American Museum of Natural History (AMNH 87244), *L. namibensis* differs in markedly larger size; paler color; and strikingly larger ears. The skull, in all respects is decidedly larger and more robust.

Remarks: These specimens were taken in a mist net over a water hole in the bed of the Kuiseb River near the Namib Desert Research Station.

The name proposed for this new taxon is in reference to the Namib Desert of South West Africa.

***Laephotis botswanae* new species**

Holotype: Adult female, skin and skull, U.S. National Museum no. 425349, from 50 mi. W, 12 mi. S Shakawe, Botswana. Obtained 24 May 1967 by S. W. Goussard, original no. 691.

Referred Specimens: British Museum (Natural History) 55.1134 and BM(NH) 55.1135 from Solwezi Boma, Zambia, obtained 28 April 1952 by W. H. F. Ansell; BM(NH) 57.436 and BM(NH) 57.438 from Mumene, 40 km. E Elizabethville, Congo (Kinshasa), obtained 28 December 1955 by the Hygiene Service of the Congo.

Measurements: The measurements of the holotype are: Total length 96; length of tail 41; length of hind foot 8; length of ear from notch 21; length of forearm (dry) 37.3; greatest length of skull 14.5; greatest breadth across zygomatic arches 8.3; least postorbital breadth 3.4; greatest breadth of braincase 7.0; depth of braincase 4.7; length of maxillary toothrow 4.7; postpalatal length 5.2; breadth of palate across M²-M² 5.4; breadth of palate across C-C 4.4.

Diagnosis: Upper parts near Buffy Brown; flight membranes near Clove Brown; underparts somewhat paler than dorsum, individual hairs black at base (5 mm), a narrow band (1 mm) of pure color and tipped (2 to 3 mm) with buffy. Ears moderate in size; tragus and antitragus moderately developed. Skull average in size for the genus; relatively narrow; rostrum relatively long and narrow; zygomatic arches fragile;

TABLE 1. Measurements of four species of *Laephotis*.

Specimens examined	External measurements										Cranial measurements				
	Total length	Head and body length	Tail length	Foot length	Ear length	Forearm length	Greatest length	Zygomatic breadth	Postorbital breadth	Braincase breadth	Braincase depth	Maxillary toothrow length	Postpalatal length	Palatal breadth (m ² -m ³)	Palatal breadth (c-c)
<i>wintoni</i> (BMNH 1.5.6.5)	-	-	-	1	17	37.3	14.5	-	3.4	7.2	4.8	4.4	5.4	5.5	4.0
<i>namibensis</i> (USNM 342152)	106	59	47	8	25	38.2	16.5	9.0	3.2	7.5	4.7	4.9	5.9	5.2	4.0
<i>botswanae</i> (USNM 425349)	96	54	41	8	21	37.3	14.5	8.3	3.4	7.0	4.7	4.7	5.2	5.3	4.4
<i>angolensis</i> (AMNH 87244)	82	46	36	-	15	32.4	13.7	6.7	3.4	6.6	4.4	4.3	5.4	4.9	4.0

tooththrows diverging slightly posteriorly; palate markedly arched dorsally; auditory bullae moderately sized.

Comparisons: From *Laephotis wintoni* as known by a specimen in the Royal Ontario Museum (ROM 36368) from Namanga, Kenya, *L. botswanae* differs in lighter color throughout; smaller ears; somewhat shorter forearm; and smaller, less curved tragus. The skull is smaller in all respects; auditory bullae smaller; palate more concave; upper tooththrows more divergent posteriorly; and bony palate less projecting posteriorly.

Laephotis botswanae differs from the holotype and paratype of *L. namibensis* in smaller size; darker color; markedly smaller ears and tragus; and in having a shorter forearm. The skull is markedly smaller with a broader, shorter rostrum; occipital region more rounded; palatal region shorter, broader and more concave; auditory bullae less inflated; and foramen magnum markedly smaller.

Compared with *Laephotis angolensis* as known by a specimen from 35 mi. E Dande, Angola (AMNH 87244), *L. botswanae* differs in somewhat paler color; larger ears; and longer forearm. The skull is markedly larger; rostrum more massive; occipital crest less projecting posteriorly; palate broader but not as deeply concave; upper tooththrows more divergent posteriorly; and auditory bullae, relatively as well as actually, smaller.

Remarks: With the recognition of these two new taxa, four species are now known in the genus *Laephotis*. There is reasonably close relationship between *L. wintoni* and *L. botswanae* but the relationship of *L. angolensis* and *L. namibensis* with the others is somewhat obscure.

When the skulls are arranged according to their greatest length, *namibensis* is largest, followed by *wintoni*, *botswanae*, and finally *angolensis*. The same applies when greatest breadth of braincase is examined; *wintoni* is the largest, *namibensis* next, followed by *botswanae* and *angolensis* (Table 1).

Forearm measurements are rather distinctive for *L. namibensis* and *L. angolensis*, the measurement of the former being over 38 while the measurement of the latter is not known to exceed 33. The same measurement overlaps between *L. botswanae* and *L. wintoni*. If, however, one adds to the preceding differences, the size and configuration of the tragus (Fig. 1), *L. wintoni* and *L. namibensis* show the closest relationship while *L. angolensis* and *L. botswanae*, which might possibly occur together, show striking differences in the tragi.

If one assumes *L. namibensis* to be the most specialized in shape and size of the ears; shape and size of the tragus; size of the auditory bullae; and in the shape and size of the rostrum; one is tempted to group the other taxa on the same morphological bases. When this is done it seems reasonable to place *L. wintoni* and *L. namibensis* as being closely allied, even though they are separated from each other by some 24° of latitude and some 30° of longitude. The other two species, occupying this hiatus of latitude and longitude can be readily separated on the basis of length of tragus, length of forearm and greatest length of skull. It would seem

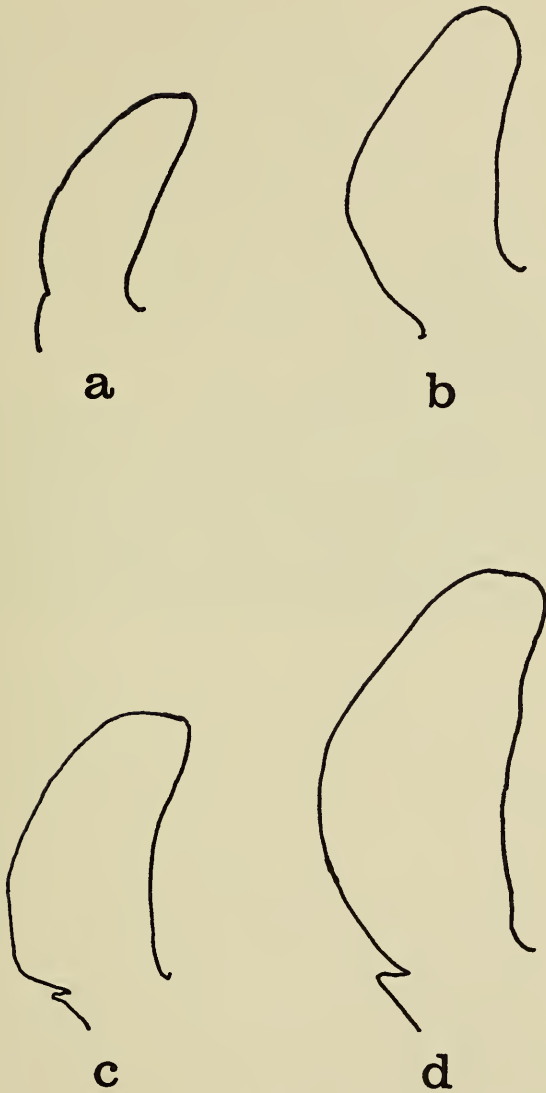


FIG. 1. Right tragi of four species of *Laephotis*; a. *angolensis*, b. *botswanae*, c. *wintoni*, d. *namibensis*.

that an arrangement from least to most specialized based on several morphological features *L. angolensis* might be the least specialized; *L. botswanae* next with *L. wintoni* and *L. namibensis* in that order.

Peterson (MS, 1971) suggests that the populations of *Laephotis* represented by specimens from Botswana, Zambia and the southeastern Congo (Kinshasa) might represent a new species if female specimens of true *L. wintoni* were known. I suggest that since the holotype of *L. angolensis* is a female and that the measurements of a single male of the same taxon from 35 km. E Dande, Angola (AMNH 87244) show no real differences, there is no significant sexual variation involved. Examination of the external and cranial measurements of the series of specimens in the British Museum from Mumene, Musonge, Congo, as presented by Peterson, reveals that sexual variation is slight but that females do average a bit larger than males.

I would like to express my appreciation to Dr. R. L. Peterson of the Royal Ontario Museum for making available to me, not only a specimen of typical *L. wintoni* but also his manuscript reporting this specimen; to Dr. Gordon Corbet and Mr. J. E. Hill of the British Museum, and Drs. Sydney Anderson and Karl Koopman of the American Museum of Natural History for making available to me the specimens of the genus *Laephotis* in their care. Special credit must go to the Department of the Army, Office of the Surgeon General, for making available the funds under Contract DA-49-193-MD-2738 by which these specimens were obtained.